

## **II. AMENDMENTS TO THE CLAIMS:**

1. (Original) A plant punch apparatus, comprising:

- a first plant punch element that comprises a first plant punch head;
- a plant punch element movement mechanism that is operable to move said first plant punch element through a plurality of spatial points that defines a first plant punch element travel path; and
- a frame that supports said plant punch movement mechanism.

wherein said plurality of spatial points comprises a first spatial point having a first horizontal distance from a vertical spatial axis defined by a first plant emergent point,

wherein said first plant emergent point is defined by a site at which a first plant emerges from plant growth media in which it is established before it is punched from its container during a plant punch event,

wherein said first plant emergent point defines a plant emergent point horizontal plane,

wherein said plurality of spatial points further comprises a second spatial point that:

- defines a second horizontal plane that is below said first spatial point and above said plant emergent point horizontal plane, and
- has a second horizontal distance from said vertical spatial axis; and

wherein said first horizontal distance is greater than said second horizontal distance,

wherein said first plant punch element travel path intersects and passes through and below said plant emergent point horizontal plane,

wherein said first plant punch element travel path has a vertical component at its intersection with said plant emergent point horizontal plane, and

wherein said first plant punch element travel path has a horizontal component at some point from said first spatial point to said second spatial point of said first plant punch element travel path.

2. (Original) A plant punch apparatus as described in claim 1 wherein said plant punch element movement mechanism is operable to move said first plant punch element to generate a plant punch cycle.
3. (Original) A plant punch apparatus as described in claim 2 wherein said plant punch element movement mechanism comprises a horizontal plant punch movement mechanism and a vertical plant punch movement mechanism.
4. (Original) A plant punch apparatus as described in claim 3 wherein said vertical plant punch movement mechanism is manually operable.
5. (Original) A plant punch apparatus as described in claim 3 wherein said horizontal plant punch movement mechanism is automatically operable.
6. (Original) A plant punch apparatus as described in claim 2 wherein said plant punch element movement mechanism is manually operable.
7. (Original) A plant punch apparatus as described in claim 2 wherein said plant punch element movement mechanism is manually operable only in part.
8. (Original) A plant punch apparatus as described in claim 2 wherein said plant punch element movement mechanism is automatically operable.

9. (Original) A plant punch apparatus as described in claim 2 wherein said plant punch element movement mechanism is automatically operable only in part.
10. (Original) A plant punch apparatus as described in claim 1 wherein said first plant punch element travel path passes below said plant emergent point horizontal plane substantially at least by that amount necessary to punch said plant from said container.
11. (Original) A plant punch apparatus as described in claim 10 wherein said first plant punch element travel path passes below said plant emergent point horizontal plane at least by that amount necessary to transplant said first plant into a container established below said plant emergent point horizontal plane.
12. (Original) A plant punch apparatus as described in claim 1 further comprising additional plant punch elements that each comprise a plant punch head, wherein said plant punch element movement mechanism is also operable to move said additional plant punch elements through additional, respective plant punch element travel paths to punch additional, respective plants, wherein said additional, respective plant punch element travel paths are each spatially oriented relative to their additional, respective plant as said first plant punch element travel path is spatially oriented relative to said first plant, but also wherein said additional, respective plant punch element travel paths are horizontally offset from said first plant punch element travel path.
13. (Original) A plant punch apparatus as described in claim 12 wherein said first plant punch element and said additional plant punch elements are established in a row by column pattern.
14. (Original) A plant punch apparatus as described in claim 1 further comprising said first plant.
15. (Original) A plant punch apparatus as described in claim 14 further comprising additional plants that are punched by additional plant punch elements.

16. (Original) A plant punch apparatus as described in claim 1 further comprising additional plant punch elements, wherein said plant punch element movement mechanism is also operable to move said additional plant punch elements through additional, respective plant punch element travel paths that mimic said first plant punch element travel path in parallel fashion.
17. (Original) A plant punch apparatus as described in claim 16 wherein said first plant punch element and said additional plant punch elements are established in a row by column pattern.
18. (Original) A plant punch apparatus as described in claim 1 further comprising a  $n^{\text{th}}$  plant punch element that said plant punch element movement mechanism is operable to move through a plurality of spatial points that defines a  $n^{\text{th}}$  plant punch element travel path.
19. (Original) A plant punch apparatus as described in claim 18 wherein said  $n^{\text{th}}$  plant punch element travel path is horizontally offset from said first plant punch element travel path.
20. (Original) A plant punch apparatus as described in claim 19 wherein respective points on each said first plant punch element travel path and said  $n^{\text{th}}$  plant punch element travel path are horizontally equidistant from each other.
21. (Original) A plant punch apparatus as described in claim 1 wherein said plurality of spatial points comprises a third spatial point that is substantially co-incident with said plant emergent point.
22. (Original) A plant punch apparatus as described in claim 1 wherein said first plant punch element travel path is substantially vertical when it passes through said lower horizontal plane.
23. (Original) A plant punch apparatus as described in claim 1 wherein said first spatial point,

said second spatial point and said first plant emergent point are substantially within the same vertical plane.

24. (Original) A plant punch apparatus as described in claim 1 wherein an upper portion of said first plant punch element travel path that is between said first spatial point and said second spatial point of said first plant punch element travel path is substantially vertical.
25. (Original) A plant punch apparatus as described in claim 1 wherein said plant punch element travels along said first plant punch element travel path from said first spatial point of said first plant punch element travel path, then through said second spatial point of said first plant punch element travel path, then through said plant emergent point horizontal plane.
26. (Original) A plant punch apparatus as described in claim 1 wherein, after traveling through said plant emergent point horizontal plane, said first plant punch element reaches a lowest position, and then returns to said first spatial point of said first plant punch element travel path through a first plant punch element return travel path that is part of said first plant punch element travel path.
27. (Original) A plant punch apparatus as described in claim 26 wherein said first plant punch element return travel path comprises said second spatial point and said first spatial point of said first plant punch element travel path.
28. (Original) A plant punch apparatus as described in claim 26 wherein at least half of said first plant punch element return travel path is along said vertical spatial axis.
29. (Original) A plant punch apparatus as described in claim 1 wherein said first plant punch element reaches its highest point at said first spatial point of said first plant punch element travel path.
30. (Original) A plant punch apparatus as described in claim 1 wherein said plant punch

movement mechanism is operable to move said first plant punch element through said horizontal component of said first plant punch element travel path through pneumatics.

31. (Original) A plant punch apparatus as described in claim 1 wherein said plant punch movement mechanism is operable to move said first plant punch element through said vertical component of said first plant punch element travel path upon application of a manual force to said plant punch movement mechanism.
32. (Original) A plant punch apparatus as described in claim 1 wherein said first plant punch element further comprises a first plant punch body.
33. (Original) A plant punch apparatus as described in claim 1 wherein an upper portion of said first plant has plant punch sensitive vegetative parts that define a sensitive vegetation profile in a plane defined by said first spatial point and said plant emergent point, and wherein said first plant punch element travel path is outside one side of said sensitive vegetation profile.
34. (Original) A plant punch apparatus as described in claim 1 wherein said first plant punch element initiates a horizontal motion at a horizontal motion initiation point located at some point between said first spatial point and said second spatial point and along said first plant punch element travel path.
35. (Original) A plant punch apparatus as described in claim 34 wherein said horizontal motion initiation point has a horizontal motion initiation height above said plant emergent point horizontal plane, and wherein said horizontal motion initiation height is adjustable.
36. (Original) A plant punch apparatus as described in claim 34 wherein said horizontal motion initiation point has a horizontal motion initiation width that is equal to a horizontal distance of said horizontal motion initiation point from said vertical spatial axis, and wherein said horizontal motion initiation width is adjustable.

37. (Original) A plant punch apparatus as described in claim 1 wherein said horizontal component of said first plant punch element has a horizontal motion initiation point between said first spatial point and said second spatial point, and wherein said horizontal motion initiation point is spatially adjustable.
38. (Original) A plant punch apparatus as described in claim 1 wherein said plant punch element movement mechanism is operable to effect a horizontal travel distance of said first plant punch element, and wherein said horizontal travel distance is adjustable.
39. (Withdrawn) A plant punch method, comprising the steps of:
- moving a first plant punch element having a first plant punch head, from a first spatial point to a second spatial point that is lower than said first spatial point, wherein said first spatial point and said second spatial point partially define a first plant punch element travel path;

wherein said first spatial point has a first horizontal distance from a vertical spatial axis that defines a first plant emergent point,

wherein said first plant emergent point is defined by the site at which a first plant emerges from plant growth media in which it is established before it is punched from its container during a plant punch event,

wherein said second spatial point has a second horizontal distance from said vertical spatial axis, and

wherein said first horizontal distance is greater than said second horizontal distance,

and further comprising the steps of:

- moving said first plant punch element through a plant emergent point horizontal plane defined by said first plant emergent point so as to punch said first plant from its container;
  - punching said first plant from its container;
  - reaching a lowest first plant punch element position; and
  - returning said first plant punch element to said first spatial point.
40. (Withdrawn) A plant punch method as described in claim 39 further comprising the step of transplanting said first plant.
41. (Withdrawn) A plant punch method as described in claim 39 wherein said step of returning said first plant punch element to said first spatial point comprises the step of completing a plant punch cycle.
42. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving said first plant punch element through a horizontal plane defined by said first plant emergent point so as to punch said first plant from its container comprises the step of manually moving said plant punch element through use of a plant punch movement mechanism.
43. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving a first plant punch element from a first spatial point to a second spatial point comprises the step of moving said first plant punch element to have a horizontal component of motion.
44. (Withdrawn) A plant punch method as described in claim 43 wherein said step of moving said first plant punch element to have a horizontal component of motion comprises the step of pneumatically moving said first plant punch element through use of a plant punch movement mechanism.
45. (Withdrawn) A plant punch method as described in claim 43 wherein said step of moving said first plant punch element to have a horizontal component of motion comprises the step



of automatically moving said first plant punch element through use of a plant punch movement mechanism.

46. (Withdrawn) A plant punch method as described in claim 39 wherein said step of returning said first plant punch element to said first spatial point comprises the step of returning said plant punch element to said first spatial point only after returning said first plant punch element to said second spatial point.
47. (Withdrawn) A plant punch method as described in claim 39 wherein said step of returning said first plant punch element to said first spatial point comprises the step of vertically moving said first plant punch element such that substantially at least one third of its travel from said lowest first plant punch element position to said first spatial point is along said vertical spatial axis.
48. (Withdrawn) A plant punch method as described in claim 47 wherein said step of vertically moving said first plant punch element such that substantially at least one third of its travel from said lowest first plant punch element position to said first spatial point is along said vertical spatial axis is performed manually.
49. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving said first plant punch element through a plant emergent point horizontal plane defined by said first plant emergent point comprises the step of moving said first plant punch element substantially through said first plant emergent point.
50. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving said first plant punch element through a plant emergent point horizontal plane comprises the step of purely vertically moving said first plant punch element.
51. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving a first plant punch element from a first spatial point to a second spatial point comprises the

step of moving said plant punch element from its highest position during a punch cycle.

52. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving a first plant punch element from a first spatial point to a second spatial point that is lower than said first spatial point comprises the step of moving said first plant punch element horizontally while also moving said first plant punch element vertically downward.
53. (Withdrawn) A plant punch method as described in claim 52 wherein said step of moving said first plant punch element horizontally comprises the step of pneumatically moving said first plant punch element.
54. (Withdrawn) A plant punch method as described in claim 52 wherein said step of moving said first plant punch element vertically downward comprises the step of manually moving said first plant punch element.
55. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving a first plant punch element from a first spatial point to a second spatial point that is lower than said first spatial point comprises the step of moving said first plant punch element outside of one side of a sensitive vegetation profile defined by sensitive vegetative parts of an upper portion of said first plant, wherein said sensitive vegetation profile is in a plane defined by said first spatial point and said plant emergent point.
56. (Withdrawn) A plant punch method as described in claim 39 further comprising the step of moving at least one additional plant punch element through a respective at least one additional plant punch element travel path that is each horizontally offset from said first plant punch element travel path.
57. (Withdrawn) A plant punch method as described in claim 56 wherein said plant punch element further comprises a plant punch body.

58. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving a first plant punch element from a first spatial point to a second spatial point comprises the step of initiating a horizontal motion of said first plant punch element at a horizontal motion initiation point.
59. (Withdrawn) A plant punch method as described in claim 58 wherein the step of initiating a horizontal motion of said first plant punch element comprises initiating said horizontal motion at a horizontal motion initiation height above said plant emergent point horizontal plane, and further comprises the step of adjusting said horizontal motion initiation height.
60. (Withdrawn) A plant punch method as described in claim 58 wherein the step of initiating a horizontal motion of said first plant punch element comprises initiating said horizontal motion at a horizontal motion initiation width that is equal to a horizontal distance of said horizontal motion initiation point from said vertical spatial axis, and further comprises the step of adjusting said horizontal motion initiation width.
61. (Withdrawn) A plant punch method as described in claim 39 wherein said step of moving said first plant punch element through a plant emergent point horizontal plane defined by said first plant emergent point so as to punch said first plant from its container comprises the step of moving said first plant punch element through a plant emergent point horizontal plane substantially at said first plant emergent point.
62. (Withdrawn) A plant punch method, comprising:
- moving a plant punch element that comprises a plant punch head downwards from a first position;
  - moving said plant punch head in towards a vertical spatial axis defined by a first plant emergent point,

wherein said first plant emergent point is defined by the site at which a plant emerges from plant growth media in which it is established before it is punched from its container during a plant punch event,

- punching said plant with said plant punch element to cause a plant punch event; and
- returning said plant punch element to said first position.

Claims 63-161 (Cancelled)